

**FIG. 1A**

2001	AAAGGCCGCG	TTGCTGGCGT	TTTTCCATAG	GCTCCGCCCC	CCTGACGAGC	ATCACAAAAA	TCGACGCTCA	AGTCAGAGGT	2080
2081	GGCGAAACCC	GACAGGACTA	TAAAGATACC	AGGCGTTTCC	CCCTGGAAGC	TCCCTCGTGC	GCTCTCCTGT	TCCGACCCCTG	2160
2161	CCGCTTACCG	GATACCTGTC	CGCCTTTCTC	CCCTCGGGAA	GCGTGGCGCT	TTCTCAATGC	TCACGCTGTA	GGTATCTCAG	2240
2241	TTCGGIGTAG	GTCGTTCCGT	CCAAGCTGGG	CTGIGTGCAC	GAACCCCCCG	TTCAGCCCCG	CCGCTGGCC	TTATCCGGTA	2320
2321	ACTATGCTCT	TGAGTCCAAC	CCGGTAAGAC	ACGACTTATC	GCCACTGGCA	GCAGCCACTG	GTAACAGGAT	TAGCAGAGCG	2400
2401	AGGTATGTAG	GCGGTGCTAC	AGAGTTCCTG	AAGTGGTGGC	CTAACTACGG	CTACACTAGA	AGGACAGTAT	TTGGTATCTG	2480
2481	CGCTCTGCTG	AAGCCAGTTA	CC TTCGAAA	AAGAGTTGGT	AGCTCTTGAT	CCGGCAACA	AACCACCGCT	GGTAGCGGTG	2560
2561	GTTTTTTTGT	TTGCAAGCAG	CAGATTACGC	GCAGAAAAAA	AGGATCTCAA	GAAGATCCTT	TGATCTTTTC	TACGTGATCC	2640
2641	CGTAATGCTC	TGCCAGTGTT	ACAACCAATT	AACCAATTCT	GATTAGAAAA	ACTCATCGAG	CATCAAAATGA	AACTGCAATT	2720
2721	TATTCATATC	AGGATTATCA	ATACCATATT	TTTGAAAAAG	CCGTTTCTGT	AATGAAGGAG	AAAACCTCACC	GAGGCAGTTC	2800
2801	CATAGGATGG	CAAGATCCTG	GTATCGGTCT	GCGATTCCGA	CTCGTCCAAC	ATCAATACAA	CCTATTAATT	TCCCCTCGTC	2880
2881	AAAATAAGG	TTATCAAGTG	AGAAATCACC	ATGAGTGACG	ACTGAATCCG	GTGAGAAATGG	CAAAAGCTTA	TGCATTTCTT	2860
2961	TCCAGACTTG	TTCAACAGGC	CAGCCATTAC	GCTCGTCATC	AAAATCACTC	GCATCAACCA	AACCGTTATT	CATTCTGTAT	3040
3041	TGCGCCTGAG	CGAGACGAAA	TACGCGATCG	CTGTTAAAG	GACAATTACA	AACAGGAATC	GAATGCAACC	GGCGCAGGAA	3120
3121	CACTGCCAGC	GCATCAACAA	TATTTTCACC	TGAATCAGGA	TATCTTCTA	ATACCTGGAA	TGCTGTTTTC	CCGGGGATCG	3200
3201	CAGTGGTGAG	TAACCATGCA	TCATCAGGAG	TACGGATAAA	ATGCTTGATG	GTGGAAGAG	GCATAAATTC	CGTCAGCCAG	3280
3281	TTTAGTCTGA	CCATCTCATC	TGTAACATCA	TTGGCAACGC	TACCTTTGCC	ATGTTTCAGA	AACAACCTCG	GCGCATCGGG	3360
3361	CTTCCCATAC	AATCGATAGA	TTGTGCGACC	TGATTGCCCG	ACATTATCGC	GAGCCCATTT	ATACCCATAT	AAATCAGCAT	3440
3441	CCATGTTGGA	ATTTAATCGC	GGCCTCGAGC	AAGACGTTTC	CCGTTGAATA	TGGCTCATAA	CACCCCTTGT	ATTACTGTTT	3520
3521	ATGTAAGCAG	ACAGTTTTAT	TGTTCAATGAT	GATATATTTT	TATCTTGTGC	AATGTAACAT	CAGAGATTTT	GAGACACAAC	3600
3601	GTGGCTTTCC								3610

FIG.1B

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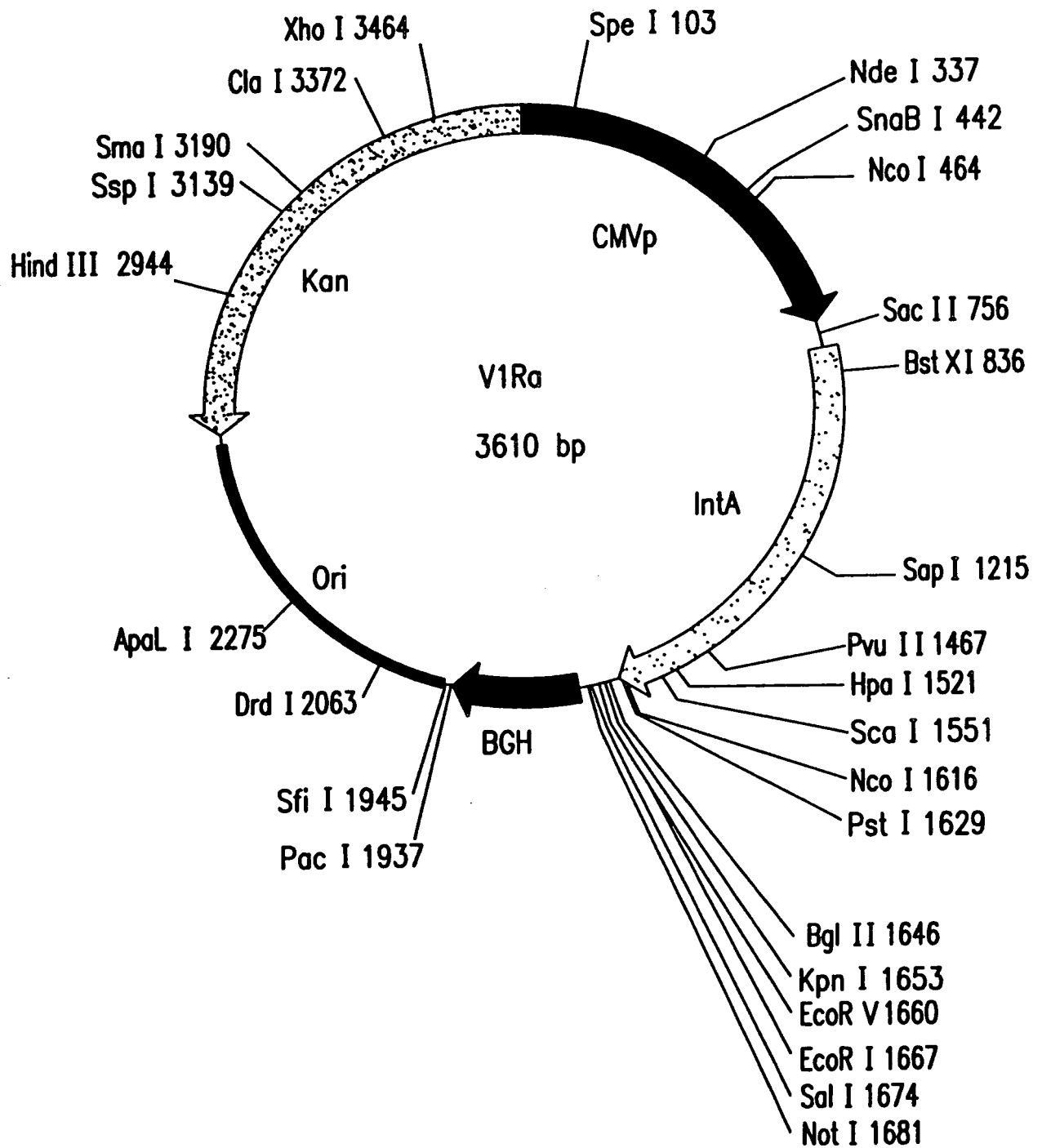


FIG.2

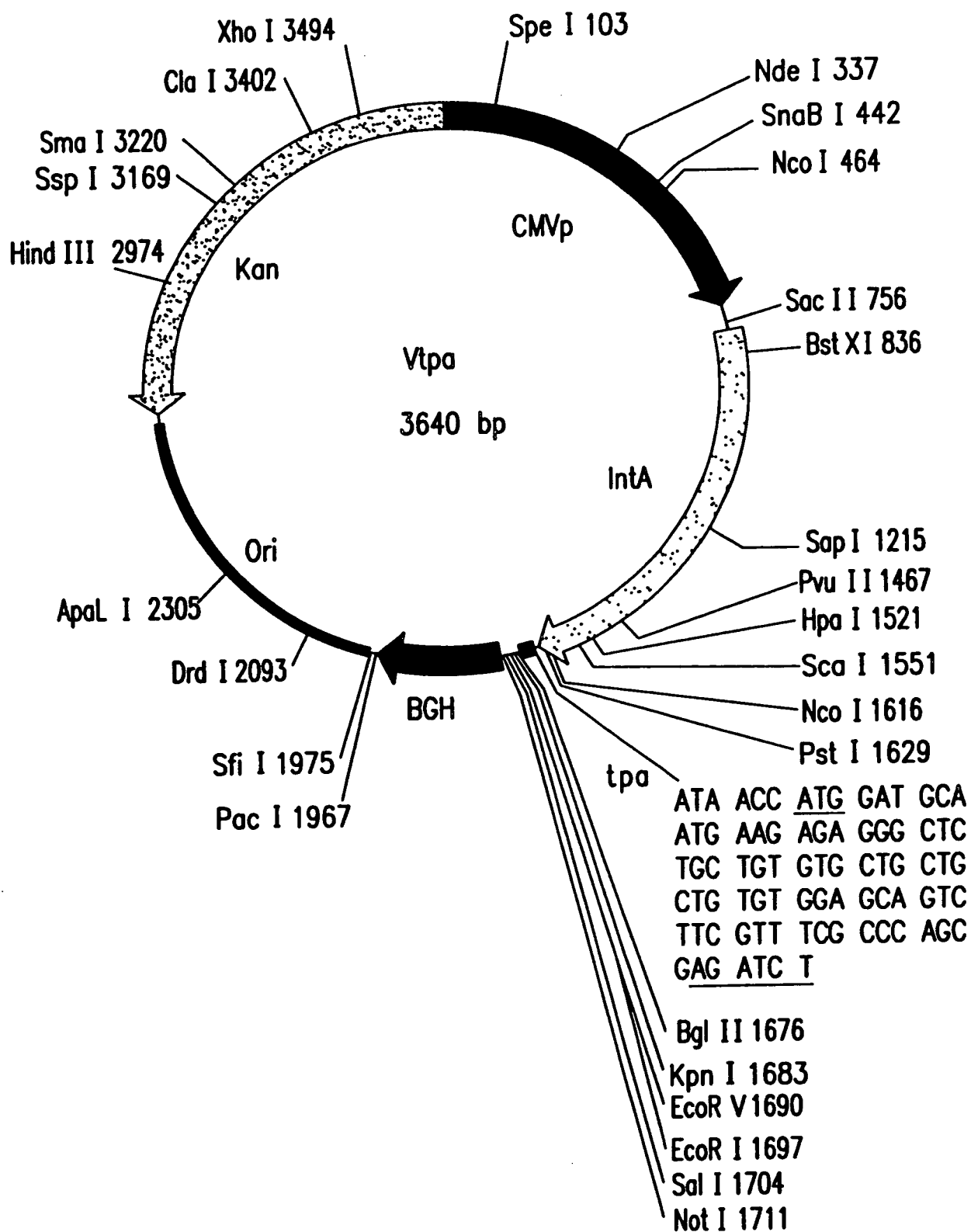


FIG.3

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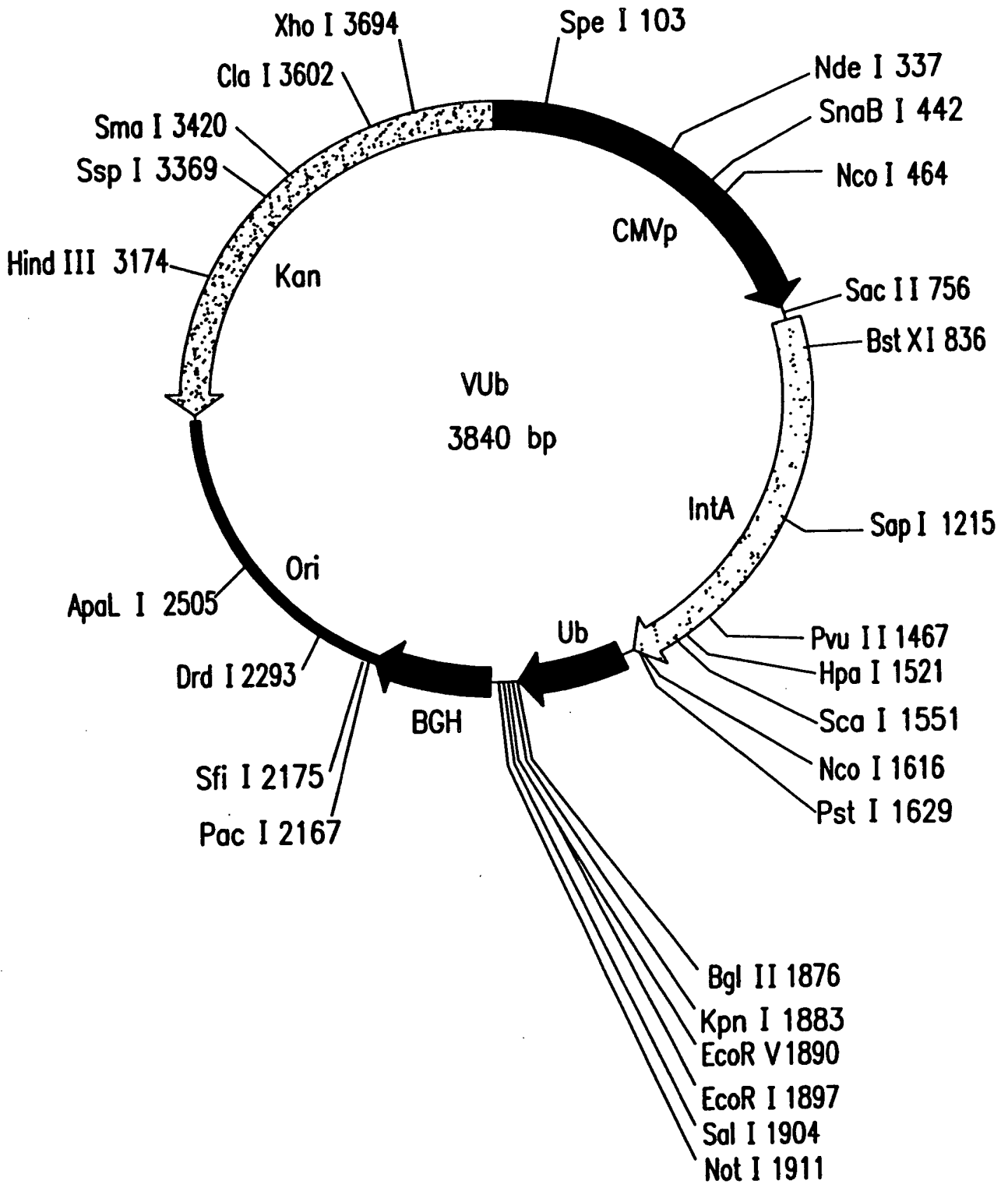
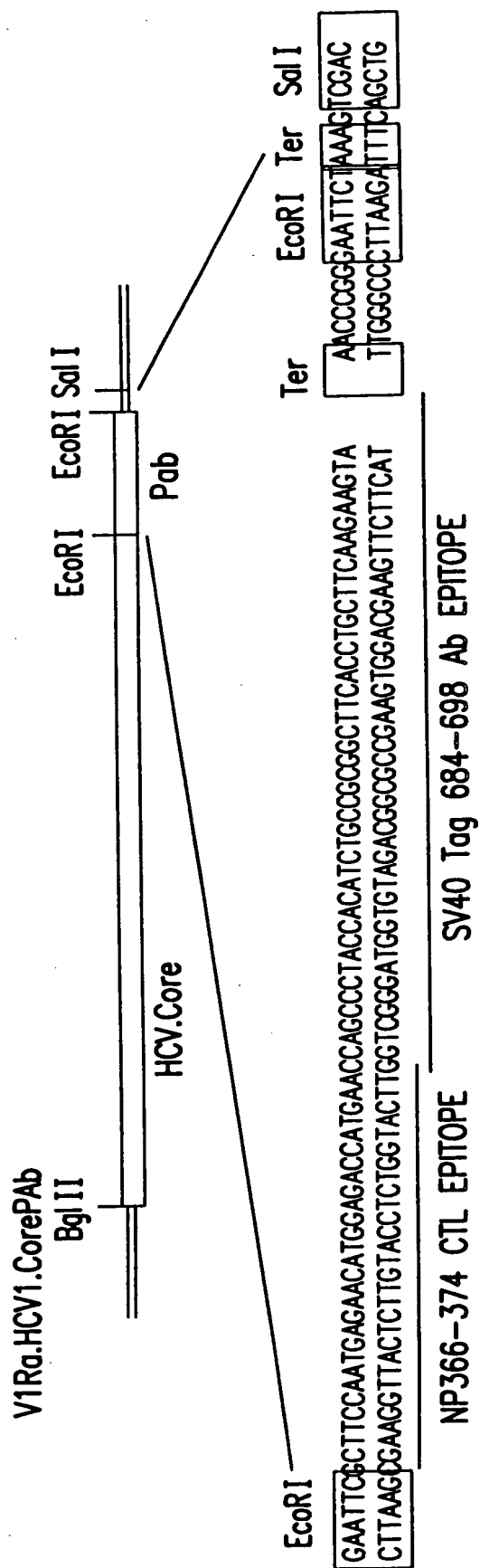


FIG.4

1/1 31/11  
 ATG AGC ACC AAC CCC AAg CCC CAg AGg AAg ACC AAg aGg AAC ACC AAC aGg aGg CCCcAG  
 Met ser thr asn pro lys pro gln arg lys thr lys arg asn thr asn arg arg pro gln  
 61/21 91/31  
 GAT GTg AAG TTC CCT GGg GGa CAG ATt GTg GGa GGg GTc TAC cTg cTg CCc aGg AGG  
 asp val lys phe pro gly gly gln ile val gly val tyr leu leu pro arg arg  
 121/41 151/51  
 GGC CCC AGG cTg GGg GTg aGg GcT Acc aGg AAG Acc TcT GAG aGg Tcc CAg CCC aGg GGC  
gly pro arg leu gly val arg ala thr arg lys thr ser glu arg ser gln pro arg gly  
 181/61 211/71  
 AGG aGg CAG CCC ATC CCC AAG Gcc aGg aGg CCT GAG GGC cGc TCC TGG Gcc CAG CCT GGC  
 arg arg gln pro ile pro lys ala arg arg pro glu gly arg ser trp ala gln pro gly  
 241/81 271/81  
 TAC CCC TGG CCC CTg TAT GGC AAT GAa GGC TTt GGC TGG GcT GGC TGG CTg CTg TCC CCC  
 try pro trp pro leu tyr gly asn glu gly phe gly trp ala gly trp leu leu ser pro  
 301/101 331/111  
 aGg GGC Tcc aGg CCc tcc TGG GGC CCC ACa GAC CCC aGg aGg aGg Tcc aGg AAC cTg GGC  
 arg gly ser arg pro ser trp gly pro thr asp pro arg arg ser arg asn leu gly  
 361/121 391/131  
 AAg GTg ATt GAC ACC CTg Acc Tgt GGC TTt GcT GAC CTg ATg GGC TAC ATC CCc CTg GTg  
 lys val ile asp thr leu thr cys gly phe ala asp leu met gly tyr ile pro leu val  
 421/141 451/151  
 GGg GcT CCT GTg GGa GGg GTg GcT AGG GcT CTg GcT CAT GGg GTg AGG GTg CTg GAG GAT  
 gly ala pro val gly gly val ala arg ala leu ala his gly val arg val leu glu asp  
 481/161 511/171  
 GGG GTg AAC TAT GcT ACT GGC AAC cTg CCT GGC TGC TCC TTC ATC TTC CTg CTg GCC  
 gly val asn tyr ala thr gly asn leu pro gly cys ser phe ser ile phe leu leu ala  
 541/181 571/191  
 CTG CTc TCC TGC CTg ACa GTg CCT GcT TCT GCC  
leu leu ser cys leu thr val pro ala ser ala

FIG. 5



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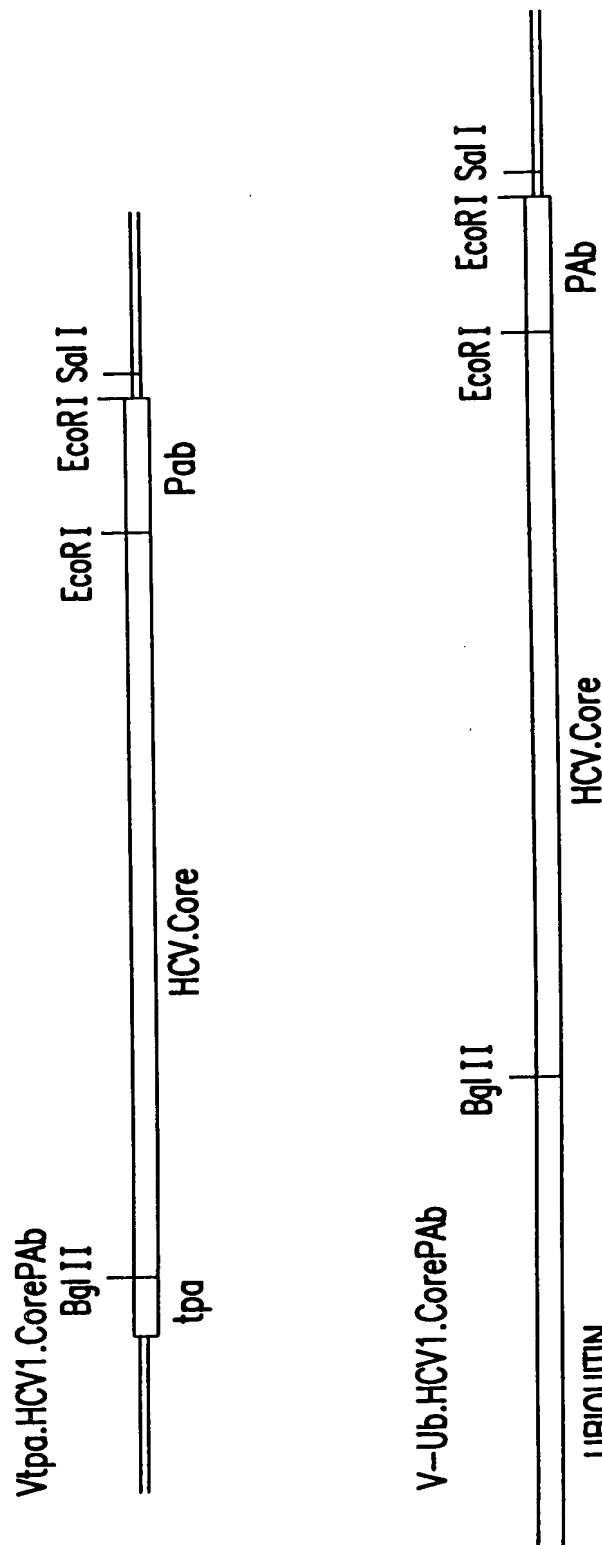


FIG.6

1/1 31/11  
 ATG AGC AGC AAT CCT AAA CCT CAA AGA AAA ACC AAA CGT AAC ACC AAC CGC CGC CCA CAG  
 Met ser thr asn pro lys pro gln arg lys thr lys arg asn thr arg arg pro gln  
 61/21 91/31  
 GAC GTC AAG TTC CCg GGC GGT GGT CAG ATC GTT GGT GGA GTT TAC TTC TTG CCG CGC AGG  
 asp val lys phe pro gly gly gln ile val gly gly val tyr leu leu pro arg arg  
 121/41 151/51  
 GGC CCC AGG TTG GGT GTG CGC GCG ACT aGG AAG ACT TCc GAG CGG TCG CAA CCT CGT GGa  
 gly pro arg leu gly val arg ala thr arg lys thr ser glu arg ser gln pro arg gly  
 181/61 211/71  
 AGG CGa CAG CCT ATC CCC AAG Gct CGc CGG cCC GAG GGc AGG TCC TGG GCT CAG CCC GGG  
 arg arg gln pro ile pro lys ala arg arg pro glu gly arg ser trp ala gln pro gly  
 241/81 271/91  
 TAC CCT TGG CCc CTc TAT GGc AAT GAG GGC Ttc GGG TGG GCA GGa TGG CTC CTG TCC CCC  
 tyr pro trp pro leu tyr gly asn glu gly phe gly trp ala gly trp leu leu ser pro  
 301/101 331/111  
 CGC GGC TCT CGg Cct agT TGG GGC CCc AcT GAC CCC CGG CGt AGG TCG CGC AAT TTG GGT  
 arg gly ser arg pro ser trp gly pro thr asp pro arg arg ser arg asn leu gly  
 361/121 391/131  
 AAG GTC ATC GAT ACC CTC ACG TGC GGC TTC GCC GAC CTC ATG GGg TAC ATC CCG CTC GTc  
 lys val ile asp thr leu thr cys gly phe ala asp leu met gly tyr ile pro leu val  
 421/141 451/151  
 GGC GCC CCc GTA GGg GGC GTC GCC AGg GCC CTG GCG CAT GGC GTC AGG GtT cTG GAG GAC  
 gly ala pro val gly gly val ala arg ala leu ala his gly val arg val leu glu asp  
 481/161 511/171  
 GGG gtg AAC TAT GCA ACA GGG AAt tTg cCc GGT TGC TCT TTC TCT ATC TTC CTC cTG Gct  
 glu val asn tyr ala thr gly asn leu pro gly cys ser phe ser ile phe leu leu ala  
 541/181 571/191  
 CTg CTg TCc TGC CTG ACC GTC CCA Gct TCT GCT  
leu leu ser cys leu thr val pro ala ser ala

FIG. 7



TABLE 3  
CODON UTILIZATION IN HUMAN PROTEIN-CODING SEQUENCES

a	b	c	d	e	f	a	b	c	d	e	f
F	UUU	68	0.35	193	4.5	Y	UAU	72	0.47	153	3.6
	UUC	125	0.65				UAC	81	0.53		
L	UUA	20	0.05	445	10.4	H	CAU	44	0.42	105	2.5
	UUG	42	0.09				CAC	61	0.58		
	CUU	50	0.11			Q	CAA	50	0.26	192	4.5
	CUC	99	0.22				CAG	142	0.74		
	CUA	30	0.07			N	AAU	51	0.34	148	3.5
	CUG	204	0.46				AAC	97	0.66		
I	AUU	28	0.23	123	2.9	K	AAA	137	0.45	303	7.0
	AUC	79	0.64				AAG	166	0.55		
	AUA	16	0.13			D	GAU	79	0.38	209	4.9
M	AUG	77	1.00	77	1.8		GAC	130	0.62		
V	GUU	35	0.13	266	6.2	E	GAA	125	0.40	311	7.3
	GUC	72	0.27				GAG	186	0.60		
	GUA	25	0.09			C	UGU	44	0.30	147	3.4
	GUG	134	0.50				UGC	103	0.70		
S	UCU	59	0.17	349	8.1	W	UGG	56	1.00	56	1.3
	UCC	91	0.26			R	CGU	19	0.09	215	5.0
	UCA	37	0.11				CGC	40	0.19		
	UCG	25	0.07				CGA	22	0.10		
	AGU	37	0.11				CGG	33	0.15		
	AGC	100	0.29				AGA	51	0.24		
P	CCU	51	0.24	212	4.9		AGG	50	0.23		
	CCC	86	0.41			G	GGU	36	0.15	245	5.7
	CCA	51	0.24				GGC	108	0.44		
	CCG	24	0.11				GGA	42	0.17		
T	ACU	47	0.20	238	5.6		GGG	59	0.24		
	ACC	113	0.47								
	ACA	50	0.21								
	ACG	28	0.12								
A	GCU	91	0.31	298	7.0						
	GCC	119	0.40								
	GCA	51	0.17								
	GCG	37	0.12								

TOTAL 4285 RESIDUES EXCLUDING  
N-TERMINAL METHIONINE RESIDUES

FIG.8

```

1/1      31/11
atg TAT GAG GTG aGg AAt GTc TcT GGc GTc TAc CAT GTg ACc AAt GAc TGC TCC AAC TCc
M Y E V R N V S G V Y H V T N D C S N S
61/21    91/31
tGc ATT GTc TAT GAG GcT GcT GAc ATG ATc ATG CAC ACC CcT GGc Tgt GTg CCa Tgt GTg
C I V Y E A A D M I M H T P G C V P C V
121/41   151/71
aGG GAG GGc AAC TCC TCC aGg TGC TGG GTg GGc CTg ACC CCC ACc CTg GcT GCC AGG AAC
R E G N S S R C W V A L T P T L A A R N
181/61   211/71
tcC tcC ATC CCC ACc ACC ATc aGg aGg CAT GTg GAc cTg CTg GTg GGc GcT GCT GCC
S S I P T T I R H V D L L V G A A A
241/81   271/91
CTg TGC TcT GcC ATG TAT GTG GGc GAc CTg TGT GGc TCT GTc TTC CTg GTg TCC CAg gTG
L C S A M Y V G D L C G S V F L V S Q L
301/101  331/111
TTC ACC TTC TCc CCc aGg aGg TAT GAG ACT GTg CAG GAc TGC AAC TGC TCc CTg TAc CcT
F T F S P R R Y E T V Q D C N C S L Y P
361/121  391/131
GGC CAT GTc TcT GGc CAC aGg ATG GcC TGG GAc ATG ATG AAC TGG TCc CCC ACc ACT
G H V S G H R M A W D M M N W S P T T
421/141  451/151
GCC cTg GTG GTc TCc CAG cTg CTg aGG ATt CCC CAg GcT GTg GTG GAc ATG GTG TGT GGg
A L V V S Q L L R I P Q A V V D M V V G
481/161  511/171
GCC CAC TGG GGc GTg CTG GcT GGc CTg GCC TAc TCC ATG GTG GGc AAC TGG GCC AAG
A H W G V L A G L A Y Y S M V G N W A K
541/181  571/191
GTg cTg ATT GTG ATG CTg CTg TTT GcT GGc GTg GAt GGc taa
V L I V M L L F A G V D G *

```

**FIG. 9**

1/1  
 atg ACC ACC TAT GTc Tct GTG Ggc CAT Gcc tcC CAG ACC ACC aGg aGg GTg Gcc TCC TTC  
 M T Y V S V G H A S Q T T R R V A S F  
 31/11  
 61/21  
 TTC tcc CCT GGC Tct Gcc CAG Aag ATC Cag CTg GTg AAC ACC AAt GGC tcc TGG CAC ATC  
 F S P G S A Q K I Q L V N T N G S W H I  
 91/31  
 121/41  
 AAC AGG ACT GCC CTG AAt TGC AAt GAG TCC ATC AAC ATC Ggc TTC TTT Gct Gcc CTG TTC  
 N R T A L N C N E S I N T G F A A L F  
 151/51  
 181/61  
 TAT GTg AAG AAG TTC AAC TCC TCT Ggc TGC Tct GAG aGg ATG Gcc tct Tgc aGg CCC ATT  
 Y V K K F N S S G C S E R M A S C R P I  
 211/71  
 241/81  
 GAC AGG TTt GCC CAG Ggc TGG Ggc CCC ATC ACC CAT GCT GAG Tcc aGg tcc Tct GAC CAG  
 D R F A Q G W G P I T H A E S R S S D Q  
 271/91  
 301/101  
 AGG CCa TAC TGC TGG CAC TAT GCC CCC CAG CCa TGT Ggc ATt GTG CCT Gcc cTG CAT GTc  
 R P Y C W H Y A P Q P C G I V P A L H V  
 331/111  
 361/121  
 Tgt Ggc Cct GTc TAc Tgc TTC ACC CCa tcC CCT GTg GTg GTG Ggc ACg ACt GAC aGg TTt  
 C G P V Y C F T P S P V V V G T T D R F  
 391/131  
 421/141  
 GGC GTg CCC ACC TAc AAC TGG Ggc GAC AAt GAG ACT GAt GTG CTg CTg AAC AAC ACC  
 G V P T Y N W G D N E T D V L L L N N T  
 451/151  
 481/161  
 aGg CCC CCC CAG Ggc AAC TGG TTt GGC Tgc Acc TGG ATG AAC tcC ACt Ggc TTC ACC AAG  
 R P P Q G N W F G C T W M N S T G F T K  
 511/171

FIG.10A

541/181 571/191  
 Acc Tgt Ggc Ggc CCC CCa Tgc Aac Att Ggc Ggc Gct Ggc AAC AAC ACC cTG ACC Tgc CCC  
 T C G G P P C N I G G A G N N T L T C P  
 601/201 631/211  
 Act Gac Tgc TTC aGg Aag Cat Cct GAg GCC Acc Tac ACC AAG Tgt Ggc Tct Ggc CCa Tgg  
 T D C F R K H P E A T Y T K C G S G P W  
 661/221 691/231  
 cTG Acc CCc AGG Tgc ATg GTg GAc Tac CCa Tac Agg CTg Tgg CAC Tac CCa Tgc Acc TTC  
 L T P R C M V D Y P Y R L W H Y P C T F  
 721/241 751/251  
 AAC TTc ACC ATc TTc AAG ATc AGG ATg Tat GTg Ggc Ggc GTg GAg CAC AGG CTg Aat Gct  
 N F T I F K I R M Y V G G V E H R L N A  
 781/261 811/271  
 Gcc Tgc AAC Tgg Acc aGg Ggc GAg aGg Tgc AAC ATt GAg GAc AGG GAc AGG Tct GAg CTg  
 A C N W T R G E R C N I E D R D R S E L  
 841/281 871/291  
 tcc CCc CTg CTg CTg Tcc Acc Act GAg Tgg CAg ATc CTg CCa Tgc Tcc TTc ACC ACC CTg  
 S P L L L S T T E W Q I L P C S F T T L  
 901/301 931/311  
 Cct Gcc CTg Tcc Act Ggc cTG ATc Cat CTg Cat CAg AAC ATt GTg Gat GTg CAg Tac CTg  
 P A L S T G L I H L H Q N I V D V Q Y L  
 961/321 991/331  
 Tat Ggc GTg Ggc Tct Gct GTg GTc Tcc ATT GTg ATc Aag Tgg GAg Tat GTg CTg CTg CTg  
 Y G V G S A V V S I V I K W E Y V L L L  
 1021/341  
 TTC CTg CTg CTg Gct Gat Gcc taa  
 F L L L A D A \*

FIG.10B

1/1  
 atg TAT GAG GTG aGg AAt GTc TcT Ggc GTc TAc CAT GTg ACc AAt GAc Tgc Tcc AAC Tcc  
 M Y E V R N V S G V Y H V T N D C S N S  
 31/11  
 61/21  
 tGc ATT GTc TAT GAG GcT GcT GAc ATG ATc ATG CAc ACC CcT Ggc Tgt GTg CCa Tgt GTg  
 C I V Y E A A D M I M H T P G C V P C V  
 91/31  
 121/41  
 aGg GAG Ggc AAC Tcc Tcc aGg Tgc Tgg GTg Ggc CTg ACC CCC ACC CTg GcT Gcc AGG AAC  
 R E G N S S R C W V A L T P T L A A R N  
 151/51  
 181/61  
 tcC tcC ATC CCC ACC ACC ATc aGg aGg CAT GTg GAc cTG CTg GTg Ggc GcT GcT Gcc  
 S S I P T T I R R H V D L L V G A A A  
 211/71  
 241/81  
 CTg Tgc TcT Gcc ATG TAT GTG Ggc GAc CTg Tgt Ggc TcT GTc TTC CTg Tcc Cag cTG  
 L C S A M Y V G D L C G S V F L V S Q L  
 271/91  
 301/101  
 TTC ACC TTC Tcc Ccc aGg aGg TAT GAG ACT GTg CAG GAc Tgc AAC Tgc Tcc CTg TAc CcT  
 F T F S P R R Y E T V Q D C N C S L Y P  
 331/111  
 361/121  
 GGC CAT GTc TcT Ggc CAC aGg ATG Gcc Tgg GAc ATG ATG AAC Tgg Tcc Ccc Acc ACT  
 G H V S G H R M A W D M M N W S P T T  
 391/131  
 421/141  
 GCC cTG GTG GTc Tcc CAG cTG CTg aGg ATt Ccc CAG GcT GTg GAc ATG GTG GTG Ggc  
 A L V V S Q L L R I P Q A V V D M V V G  
 451/151  
 481/161  
 GCC CAC Tgg Ggc GTg CTg GcT Ggc CTg GCC TAc TAc TCC ATG GTg Ggc AAC Tgg GCC AAG  
 A H W G V L A G L A Y Y S M V G N W A K  
 511/171

FIG.11A

541/181 GTg cTg ATT GTG ATG CTg CTg TTT Gct GGC GTg GAT 571/191 Ggc Acc ACC TAt GTc Tct GTG GGC  
 V L I V M L L F A G V D G T T Y V S V G  
 601/201 CAT GCC tcc CAG ACC ACC aGg aGg GTg Gcc TCC TTC TTC tcc CCT GGC Tct Gcc CAG AAg  
 H A S Q T T R R V A S F F S P G S A Q K  
 661/221 691/231 ATC CAg CTg GTg AAC ACC AAt GGC tcc TGG CAC ATC AAC AGG ACT GCC CTG AAt TGC AAt  
 I Q L V N T N G S W H I N R T A L N C N  
 721/241 751/251 GAG TCC ATC AAC ACT GGC TTC TTT Gct Gcc CTG TTC TAt GTg AAg AAg TTC AAC Tcc TCT  
 E S I N T G F F A A L F Y V K K F N S S  
 781/261 811/271 Ggc TGC Tct GAG aGg ATG Gcc tct Tgc aGg CCC ATT GAC AGG TTt Gcc CAg Ggc TGG GGC  
 G C S E R M A S C R P I D R F A Q G W G  
 841/281 871/291 CCC ATC ACC CAT GCT GAG Tcc aGg tcc Tct GAC CAg AGG CCa TAC TGC TGG CAC TAt GCC  
 P I T H A E S R S S D Q R P Y C W H Y A  
 901/301 931/311 CCC CAg CCa TGT Ggc ATt GTG Cct Gcc cTG CAT GTc Tgt Ggc Cct GTc TAC Tgc TTC ACC  
 P Q P C G I V P A L H V C G P V Y C F T  
 961/321 991/331 CCa tcc CCT GTg GTg Ggc Acc Act GAC aGg TTt Ggc GTg CCC Acc TAC AAC TGG GGC  
 P S P V V V G T T D R F G V P T Y N W G  
 1021/341 1051/351 GAC AAt GAG Act GAT GTG CTg CTg CTg AAC AAC Acc aGg CCC CcC CAg Ggc AAC TGG TTe  
 D N E T D V L L L L N N T R P P Q G N W F

FIG.11B

1081/361 1111/37  
 GGC Tgc Acc TGG ATG AAC tcC Act Ggc TTC ACC AAG Acc Tgt Ggc CCC CCa Tgc AAC  
 G C T W M N S T G F T K T C G G P P C N  
 1141/381 1171/391  
 ATt Ggc Ggc Gct Ggc AAC ACC cTg ACC Tgc CCC Act Gac Tgc TTC aGg AAG Cat Cct  
 I G G A G N N T L T C P T D C F R K H P  
 1201/401 1231/411  
 GAG GCC Acc TAC ACC AAG Tgt Ggc Tct Ggc CCa Tgg cTg Acc CCc AGg Tgc ATg GTg GAC  
 E A T Y T K C G S G P W L T P R C M V D  
 1261/421 1291/431  
 TAC CCa TAC Agg CTg Tgg CAC TAC CCa Tgc Acc TTC AAC TTc Acc ATC TTc AAG ATC AGG  
 Y P Y R L W H Y P C T F N F T I F K I R  
 1321/441 1351/451  
 ATg TAT GTg Ggc Ggc GTg GAG CAC Agg CTg Aat Gct Gcc Tgc AAC Tgg Acc aGg Ggc GAG  
 M Y V G G V E H R L N A A C N W T R G E  
 1381/461 1411/471  
 aGg Tgc AAC ATg GAG CAC Agg Gac Agg Tct GAG CTg tcC CCc CTg CTg CTg Tcc Acc Act  
 R C N I E D R D R S E L S P L L L S T T  
 1441/481 1471/491  
 GAG Tgg CAG ATc CTg CCa Tgc Tcc Ttc Acc Acc CTg Cct Gcc CTg Tcc Act Ggc cTg ATC  
 E W Q I L P C S F T T L P A L S T G L I  
 1501/501 1531/511  
 CAT CTg CAT CAG AAC ATt GTg Gat GTg Cag TAC CTg TAT Ggc GTg Ggc Tct Gct GTg GTc  
 H L H Q N I V D V Q Y L Y G V G S A V V  
 1561/521 1591/531  
 TCC ATT GTg ATC Aag Tgg GAG TAT GTg CTg CTg CTg TTC CTg CTg CTg Gct Gat Gcc taa  
 S I V I K W E Y V L L L L F L L L A D A \*

FIG.11C

1/1  
 atg Tct Ggc Tcc Tgg CTg AGG GAT GTc TGG GAC TGG ATc TGC ACT GTG cTG ACT GAC TCC  
 M S G S W L R D V W D W I C T V L T D F  
 31/11  
 61/21  
 AAG ACC TGG CTg CAT TCC AAG CTg CTG CCC aGG CTG CCT Ggc GAC CcA TTC TTC TCC TGC  
 K T W L H S K L L P R L P G D P F F S C  
 91/31  
 121/41  
 Cag aGg Ggc TAC AGG Ggc GTc TGG aGg Ggc GAT Ggc GTg ATG CAg ACC ACC TGC CcA TGT  
 Q R G Y R G V W R G D G V M Q T T C P C  
 151/51  
 181/61  
 Ggc Gcc CAG ATC ACT Ggc CAT GTg AAg AAT Ggc TCC ATG AGG ATt GTg Ggc Ccc AAg ACC  
 G A Q I T G H V K N G S M R I V G P K T  
 211/71  
 241/81  
 Tgc tcC AAC ACc TGG CAT Ggc ACc TTC CCC ATC AAT Gcc TAC ACC ACT Ggc CcA TGC ACC  
 C S N T W H G T F P I N A Y T T G P C T  
 271/91  
 301/101  
 CcA TCC CCT Gcc CCc AAC TAC TCC AGG Gcc CTG TGG aG GTG GCT GCT GAG GAG TAT GTG  
 P S P A P N Y S R A L W R V A A E Y V V  
 331/111  
 361/121  
 GAg GTg Acc aGg GTG Ggc GAC TTC CAC TAT GTG ACT Ggc ATG ACC ACT GAC AAt GTg AAg  
 E V T R V G D F H Y V T G M T T D N V K  
 391/131  
 421/141  
 TGC CcA TGC CAG GTg CCT GCC Cct GAg TTC TTC ACT GAg GTG GAT Ggc GTG aGg cTG CAC  
 C P C Q V P A P E F T E V D G V R L H  
 451/151  
 481/161  
 AGG TAT Gcc CCT Gcc TGC AAg CCc CTg CTg aGg GAT GAG GTg Acc TTC CAG GTg Ggc CTg  
 R Y A P A C K P L L R D E V T F Q V G L  
 511/171

FIG.12A



541/181 AAC CAG TTC Cct GTg Ggc Tcc CAG CTg CCa TGT GAG CCT GAg CCT GAT GTg Act GTG CTg  
 N Q F P V G S Q L P C E P E P D V T V L  
 571/191  
 601/201 ACC TCC ATG CTg Act GAg CCa TCC CAC ATc Act Gct GAG Act GCC AAG aGg AGG cTG GCC  
 T S M L T T E P S H I T A E T A K R L A  
 631/211  
 661/221 AGg Ggc Tcc Cct CCa TCC cTG GCC tcc Tcc TGcc tcc CAG cTG TCT Gct CCa Tcc cTG  
 R G S P P S L A S S S A S Q L S A P S L  
 691/231  
 721/241 AAG GCC ACC TGC Acc ACC aGg CAT GAC TCC Cct GAT Gct GAC CTg ATt GAG GCC AAC CTg  
 K A T C T T R H D S P D A D L I E A N L  
 751/251  
 781/261 CTG TGG aGg CAG GAG ATG GGC GGC AAC ATC ACC aGg GTG GAG Tct GAG AAC AAG GTg GTg  
 L W R Q E M G G N I T R V E S E N K V V  
 811/271  
 841/281 ATc CTg GAC Tcc TTT GAg CCc CTg aGg Gct GAG GAG GAT GAG AGG GAg GTc Tct GTG Gct  
 I L D S F E P L R A E E D E R E V S V A  
 871/291  
 901/301 Gct GAG ATC CTg aGg AAg tcc AGG AAG TTC CCC Cct GCC cTG CCC ATc TGG GCg aGg CCa  
 A E I L R K S R K F P P A L P I W A R P  
 931/311  
 961/321 tcc TAC AAC CCa CCc CTg CTg GAG Tcc TGG AAG GAC Cct GAC Tat GTg CCc Cct GTG GTg  
 S Y N P P L L E S W K D P D Y V P P V V  
 991/331  
 1021/381 Cat Ggc Tgc CCc CTG CCc ACC ATG GCC CCa CCC ATc CCC CCa CCC aGg AGG AAG AGG  
 H G C P L P P T M A P P I P P P R R K R  
 1051/371

FIG.12B

1081/361  
 ACT GTg GTg CTG ACT GAg TCC ACT GTc TCc TCT GCC cTG GCT GAG CTg GCC ACC AAG ACC  
 T V V L T E S T V S S A L A E L A T K T  
 1111/371  
 1141/381  
 TTC GGC tcC Tct GGC TCc Tct Gct GTg GAC tct GGC ACT GCc ACG GCC CCc CCT GAC CAG  
 F G S S G S A V D S G T A T A P P D Q  
 1171/391  
 1201/401  
 CcA Tct GAT GAT GGC GAC AGg GcT Tct GAT GAT GAG TCc TAC TCc TCc ATG CCC CCC CTg  
 P S D D G D R G S D D E S Y S S M P P L  
 1231/411  
 1261/421  
 GAG GGC GAG CCT GGC GAC CCT GAC CTg tct GAT GGC TCc TGG TCc ACT GTc tct GAG GAG  
 E G E P G D P D L S D G S W S T V S E E  
 1291/431  
 1321/441  
 GCc tct GAG GAT GTg GCc TGC TGC TCc taa  
 A S E D V A C C S \*

FIG.12C

1/1  
 ATG Tcc TAC Acc TGG Act GGC GCC CTg ATC ACc CCa Tgt Gct Gct GAG GAG tcc AAG CTG  
 M S Y T T W T G A L I T P C A A E E S K L  
 31/11  
 61/21  
 CCC ATC AAc CCc cTG tcC AAC Tcc cTG CTG aGg CAT CAC AAC ATG GTc TAt GCC ACc ACc  
 P I N P L S N S L L R H H N M V Y A T T  
 91/31  
 121/41  
 Tcc aGg tct Gct GGC CTg aGg CAG AAg AAG GTg ACC TTT GAC AGg CTG CAT GTg CCT Gat  
 S R S A G L R Q K K V T F D R L H V P C  
 151/51  
 181/61  
 GAC CAC TAC aGg Gat GTG CTg AAG GAG ATG AAG GCC AAG GCC TCC Act GTg AAG GCg AAg  
 D H Y R D V L K E M K A K A S T V K A K  
 211/71  
 241/81  
 CTg CTg TCT GTg GAG GGC TGC AAG CTG Acc CCT CCc CAC Tct GCC AGg TCC AAg TTT  
 L L S V E E A C K L T P P H S A R S K F  
 271/91  
 301/101  
 GGC TAT GGC AAG Gat GTg aGg AAC CTg TCC tcC AAG Gct GTg AAC CAC ATC CAC Tct  
 G Y G A K D V R N L S S K A V N H I H S  
 331/111  
 361/121  
 GTc TGG AAG GAC cTG CTG GAg GAC ACT GAg Acc CCC ATT GAC Acc ACC ATC ATG GCC AAg  
 V W K D L L E D T E T P I D T T I M A K  
 391/131  
 421/141  
 AAT GAG GTc TTC TGT GTg CAg CCT GAG AAg GGC GGC aGg AAG CCT GCC aGg CTg ATt GTc  
 N E V F C V Q P E K G G R K P A R L I V  
 451/151  
 481/161  
 TTC CCT GAg CTg GGC GTg aGg GTG Tgt GAG AAg ATG GCC CTg TAt Gat GTG GTc TCC Acc  
 F P E L G V R V C E K M A L Y D V V S T  
 511/171

FIG.13A

541/181 CTG CCC CAG Gct GTG ATG GGC TCC Tcc TAt Ggc TTC CAG TAC Tcc CCT GGC CAG aGG GTg  
 L P Q A V M G S S Y G F Q Y S P G Q R V  
 601/201 631/211  
 GAG TTC CTG GTG AAT GCC TGG AAg TCC AAG AAg AAC CCc ATG GGC TTt GcC TAC TGC ACC  
 E F L V N A W K S K K N P M G F A Y C T  
 661/221 691/231  
 aGg TGc TTT GAC Tcc Act GTg ACT GAG tcT GAC ATC aGg GTg GAG GAG TCC ATc TAC CAg  
 R C F D S T V T E S D I R V E E S I Y Q  
 721/241 751/251  
 TGc TGT GAC cTG Gct Cct GAG GCC Agg CAG GTg ATc AGG TCC CTg ACT GAG aGG CTg TAC  
 C C D L A P E A R Q V I R S L T E R L Y  
 781/261 811/271  
 ATt GGC GGC CCC CTG Acc AAC TCC AAg Ggc CAG AAC Tgt Ggc TAC aGg aGG TGC aGg GCC  
 I G G P L T N S K G Q N C G Y R R C R A  
 841/281 871/291  
 tct GGC GTG CTG Acc ACT AAC Tgt Ggc AAC ACC CTg Acc TGc TAC cTG AAG GCC TCT Gct  
 S G V L T T N C G N T L T C Y L K A S A  
 901/301 931/311  
 Gct TGc aGg GCT GCC AAG CTg CAT GAC TGC TGC Acc ATG CTg GTc Tgt Ggc Gat GAC CTg GTg  
 A C R A A K L H D C T M L V C G D D L V  
 961/321 991/331  
 GTg ATC TGT GAg tct Gct Ggc ACC CAG GAG Gat Gct Gcc tcC CTg aGg GTc TTC Act GAG  
 V I C E S A G T Q E D A A S L R V F T E  
 1021/341 1051/351  
 Gcc ATG Acc AGG TAC TCT GCC CCc Cct Ggc GAC Cct CCC CAg CCT GAg TAt GAC cTG GAG  
 A M T R Y S A P P G D P P Q P E Y D L E

FIG.13B

1081/361  
 cTg ATc Acc TcC TgC TCC TCC AAt GTc Tct GTg Gcc CAT Gat Gcc TCT GGC AAG aGG GTc  
 L I T S C S S N V S V A H D A S G K R V  
 1141/381  
 TAC TAC CTg Acc aGg GAC CCC ACC CCC CTg Gcc AGG Gct Gcc TGG GAG ACT GCC AGg  
 Y Y L T R D P T T P L A R A A W E T A R  
 1201/401  
 CAC Acc Cct GTg AAC TCC TGG CTg GGC AAC ATC ATC ATG TAT Gcc CCC ACC CTG TGG Gcc  
 H T P V N S W L G N I I M Y A P T L W A  
 1261/421  
 AGG ATG ATc CTG ATG ACC CAC TTC TCC ATC CTg CTg Gcc CAG GAG CAG CTg GAG AAg  
 R M I L M T H F S I L L A Q E Q L E K  
 1321/441  
 GCC CTG GGC TgC CAG ATt TAT GGC GCC Acc TAC TTC ATT GAG CCC CTg GAC CTg CCC CAG  
 A L G C Q I Y G A T Y F I E P L D L P Q  
 1381/461  
 ATC ATc CAG aGg CTg CAT GGC CTg tct Gcc Ttc Tcc CTg CAC tcc TAC Tcc Cct GGC GAg  
 I I Q R L H G L S A F S L H S Y S P G E  
 1441/481  
 ATC AAC AGG GTG Gcc Tcc TGC CTg AGG AAg CTg Ggc GTg Ccc CCC cTG aGg GTg TGG AGg  
 I N R V A S C L R K L G V P P L R V W R  
 1501/501  
 GAc aGG GCC AGg tct GTg aGg GcC AAG CTg CTG TCC CAG GGC AGG Gct GCC Acc TGT  
 H R A R S V R A K L L S Q G G R A A T C  
 1561/521  
 GGC AAG TAC CTg TTC AAC TGG Gct GTG AGG ACC AAG CTg AAg CTg Acc Ccc ATc Cct GCT  
 G K Y L F N W A V R T K L K L T P I P A

FIG.13C

1621/541	1651/551
Gcc TCC CAG cTG GAC cTg TCt GGC TGG TTt GTg GCT GGc TAC tct GGc GGc GAC ATc TAc	
A S Q L D L S G W F V A G Y S G G D I Y	
1681/561	1711/571
CAC tcC CTG TCc aGg GCC aGg CCC aGg TGG TTC ATG TGG TGC CTg CTg CTg TCT GTg	
H S L S R A R P R W F M W C L L L L S V	
1741	1771/591
GGc GTg GGC ATC TAc CTG CTg CCC AAC aGg TGA	
G V G I Y L L P N R *	

FIG.13D